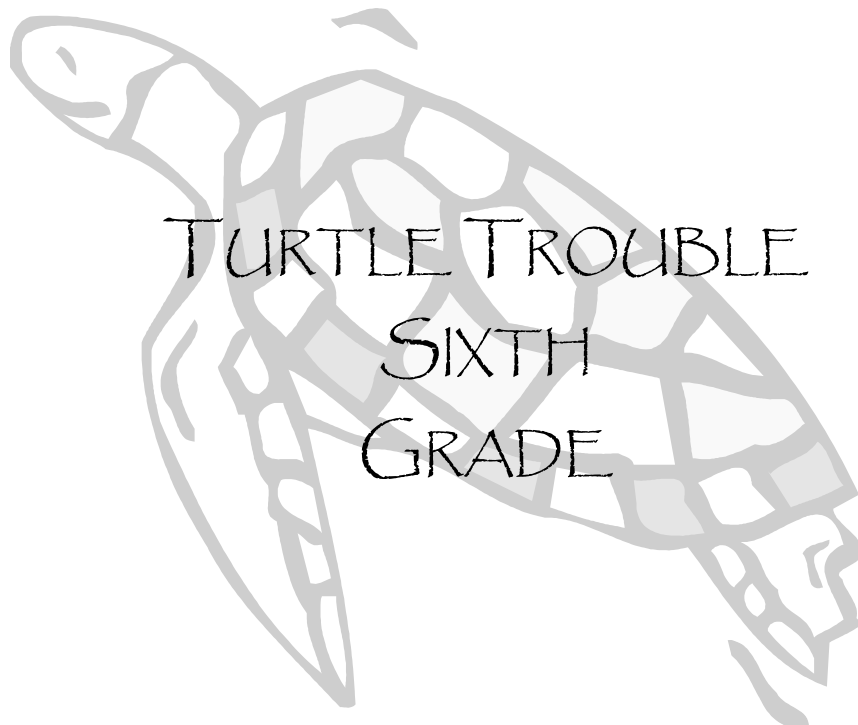




# APALACHICOLA RIVER AND BAY WATERSHED EXPLORATIONS

Apalachicola National Estuarine Research Reserve



## TURTLE TROUBLE SIXTH GRADE

Apalachicola National Estuarine Research Reserve  
Florida Department of Environmental Protection

261 7th Street  
Apalachicola, FL 32320  
850-653-8063

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**Project director:** Erik Lovestrand, Education Coordinator, Apalachicola National Estuarine Research Reserve with assistance from Lisa Bailey, Reserve Education Specialist

**Curriculum writing and design:** Lauren Tyler, Christine Denny, and Susan Marynowski- Pandion Systems, Inc.

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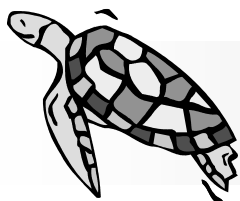
For more information or to obtain a copy of this curriculum contact:

Erik Lovestrand, Education Coordinator  
Apalachicola National Estuarine Research Reserve

[Erik.Lovestrand@dep.state.fl.us](mailto:Erik.Lovestrand@dep.state.fl.us)

261 7<sup>th</sup> Street  
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## TURTLE TROUBLE

### CONCEPT

This activity will help students understand the job of aquatic scientists and the roles they play in influencing public policy. Participation in a mock community environmental forum will teach students the importance of community involvement and working within the law to have a positive impact for the community and for wildlife.

### OBJECTIVES

1. Students will recognize that individuals of diverse backgrounds, interests, talents, and motivations make scientific contributions.
2. Students will understand that when similar investigations give different results, the scientific challenge is to verify whether the differences are significant through further study.
3. Students will understand the importance of participation in community service, civic improvement, and political activities
4. Students will focus on public speaking, role-playing, listening, and writing skills by preparing a presentation for the forum.

### METHOD

Students will play roles in and solve problems in a mock community forum. The roles of aquatic scientists and other community members will be recognized and discussed.

**Grade level:** 6<sup>th</sup> Grade

**Subjects:** Science, Social Studies, and Language Arts

**Location:** The pre-activity can be done in the classroom. The mock forum can be conducted in the classroom or in an auditorium setting.

**Materials:** Use of the library and the Internet; Items in the Activity Module

**Duration:** Three class periods including pre-activity

**Sunshine State Standards:** Listed on p. 9 of the activity

### INTRODUCTION:

One thing that scientists do is to provide technical information to local governments on wildlife management issues or when there are conflicts between development or human activities and wildlife. In this activity, students will participate in a mock community environmental forum. The class will role-play

different characters to solve a problem involving sea turtles. All of

the characters will give presentations to the mayor and town council. As a group they will work together to come up with a town **ordinance** that will protect the sea turtles during nesting season.

Students will portray various characters including a Fisheries

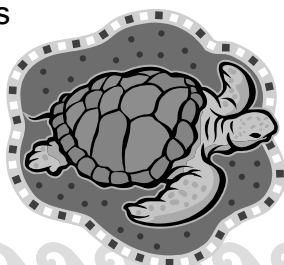
Biologist, an Environmental Scientist, and various policy makers, as they consider issues of stewardship and management of sea turtle nesting beaches and the protection of the resources. The community environmental issue that the class will explore affects coastal communities all over Florida. All six species of sea turtle that occur in Florida are protected under the U.S. **Endangered Species Act of 1973**.

### PREPARATION ACTIVITIES:

1. Have students watch a video of aquatic biologists in action. After the video the class will discuss the types of tasks that these scientists do. The class will also talk about the other professionals that aquatic biologists interact with to complete their work (i.e., government officials, policymakers, the public, historians, other scientists.)
2. Take some time to review local government structure, because it will play a large part in the mock community environmental forum. Lead a class discussion about the structure of local government and the environmental and jurisdictional authorities for sea turtle nesting beaches. There should also be some discussion about permitting, regulations and local ordinances.

### GETTING READY:

1. Have student characters and costumes/props ready. You may also allow students to create their own costumes at home.



2. Have research information in a location that students can access it.

### ACTIVITY:

1. Prepare students for this role-playing activity by reading them the activity scenario. There will also be several copies in the module for students to have on hand in case they wish to refer to it.
2. Before breaking students up into roles, ask them what they think the difficulties of this situation may be. Who is in conflict and why?
3. Assign students roles and then give them the rest of the class period to learn about the subject and how their character would feel about it. They will need to have facts, statistics, or any other information they can find to back up their character during the role play session. Use the resource section to find more information. Let them know that the next time the class meets, they will need to assume the role of their character and present their argument, then work with the rest of the group to agree on a lighting ordinance. They will need to gather facts to back up their character's feelings about the subject.
4. Once students have completed research for their character (probably in the next class period), they will act out a community forum with each student representing their character. The result of the community forum will be an

- agreed-upon lighting ordinance for the local beach areas.
5. The forum will begin with scientists presenting data about the state of the sea turtles. Information presented to the group will include biological and natural history facts, and statistical information on local turtle populations.
  6. Other individuals will also make presentations to the group. Everyone should assume their role and make their argument for why they are for or against the lighting proposal. This should include not only their character's personal opinions, but facts they researched as well.
  7. After each character has had a chance to make a presentation, the group should have a discussion. The characters should talk to each other as community members would in a real situation. The discussion should work toward the group finding an agreeable set of rules for beachfront lighting.

### ACTIVITY SCENARIO FOR TURTLE TROUBLE:

Since the passage of the **Endangered Species Act of 1973** scientists in a small community in Franklin County, Florida have carefully monitored the nests of the threatened loggerhead sea turtle each year and have determined that fewer hatchlings are successfully reaching the Gulf of Mexico now than ten years ago. Scientists and local activists feel that one reason for the low survival rate is lights on the beach, which they know distract the hatchlings and prevent them from going to the ocean after they emerge from their eggs. They feel the community should pass a light ordinance to help increase the odds that the sea turtles will survive.

This light ordinance will prohibit local hotels, homes, and businesses along the beach from having lights on that are considered "distracting" for turtles during nesting season. The community is split on whether or not this is a good idea. Hotel owners feel that limiting light use will compromise guest safety on their property at night and say they need lights of some type on at night year-round. Some local restaurants say that limiting light hurts their ability to advertise their business in the evening, thus decreasing their profits. Some homeowners on the beach say that a recent rise in burglaries at unlit homes makes it necessary to have floodlights outside of their houses for safety. Other homeowners welcome the proposal since it will make the beach more "natural." Local tourism groups and the County tourism board are happy with the idea because they like to promote the area as one of the last great stretches of natural beach and nighttime turtle walks during the nesting season are a big attraction for tourists

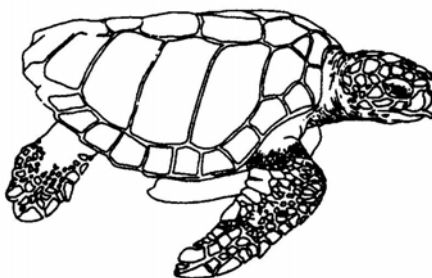
Your job is to assume the role of one of the people in the community and assist with creating a lighting ordinance along the coastline. The ordinance can be written however the group wishes, but everyone has to work together to create it. Each person must portray the role of their character and be for or against the lighting issue to some degree. You must learn information about the issue from resources in articles and on the Internet in order to support your feelings. In the end, the ordinance needs to be written to best meet everyone's needs in the community so everyone must work together in their roles to get it done.

## FOLLOW-UP:

After all of the presentations and the discussion, the group will write a town ordinance. The teacher should facilitate this activity. Students will have to agree on the best solution to the problem.

## ASSESSMENT:

Have students research other current local environmental issues and write a paper that describes at least three different potential character' view point of that conflict. Students should look for local issues in news papers and look at research that is being done by the Florida Department of Environmental Protection, other government agencies such as the Water Management District, federal agencies and universities such as University of Florida, Florida A and M University, or Florida State University.



2. Students will look at collected newspapers from the past few months to find articles about human impacts on the environment. Students will gather information to create a poster that will describe the human impact, the current state of the issue, and discuss if there are

strategies that scientists, government, and other groups are working on to improve the situation. Students will collect and display pictures

on poster board. They will write captions under each picture.

Students want to find out:

- A description of the problem (What is the human impact?)
  - Why did this happen?
  - What is the current state? (Are there groups working to solve the problem?)
  - What are the strategies that are being used to solve the problem?
  - Can students do something to help? How?
3. Have students collect research from newspapers and other resources at school and then have them create the poster at home. When the posters are completed, hold a "Poster Session" in your classroom to showcase their work.

## POST ACTIVITIES:

1. The Endangered Species Act of 1973 celebrated its 30<sup>th</sup> anniversary in 2003. Watch a video on the history of this law. Have students work in teams to determine if the law has been successful. Has the original intent of the act changed over the past 30 years? Have teams find examples of plants or animals on the endangered species list to explain their case. Have each group create a five-minute



## RESOURCES:

- Sea Turtle information including Model Light Ordinance link  
<http://www.floridaconservation.org/psm/turtles/turtle.htm>
- Understanding Assessing and Resolving Light-Pollution problems on Sea Turtle Nesting Beaches, Witherington, B.E. and Martin R. E. (PDF link below)  
[http://floridamarine.org/engine/download\\_redirection\\_process.asp?file=tr-2\\_3101.pdf&objid=2156&dltype=article](http://floridamarine.org/engine/download_redirection_process.asp?file=tr-2_3101.pdf&objid=2156&dltype=article)
- Federal Sea Turtle Program Information  
[http://www.nmfs.noaa.gov/prot\\_res/PR3/Turtles/turtles.html](http://www.nmfs.noaa.gov/prot_res/PR3/Turtles/turtles.html)
- Environmental Scientist Career Description  
<http://www.bls.gov/oco/ocos050.htm>
- Biological Scientist Career Description <http://www.bls.gov/oco/ocos047.htm>
- Coastal Roadway Lighting Manual, Florida Power and Light. 2002. pp. 1-16  
<http://floridaconservation.org/psm/turtles/manual.pdf>
- Broward County Sea Turtle Information Site  
<http://www.co.broward.fl.us/agriculture/english/wildlife/uw300.htm>
- Florida Power and Light Website:  
[http://www.fpl.com/environment/endangered/contents/sea\\_turtles\\_overview.shtml](http://www.fpl.com/environment/endangered/contents/sea_turtles_overview.shtml)



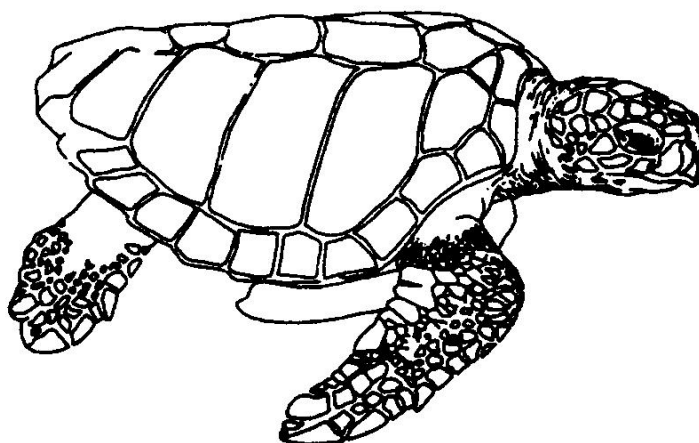
## BACKGROUND READING FOR TURTLE TROUBLE

**Aquatic Biologists** and **Environmental Scientists** study living things and their relationships with the environment. **Fisheries Biologists** usually study fish and other creatures that live in freshwater and marine environments. They often work to maintain animal population sustainability and growth and the preservation of habitats.

These scientists use many different skills in their daily routine. Scientists need to use the scientific method, carefully executed research techniques, analytical skills, and problem-solving skills to complete their scientific duties. Equally important, the scientist also needs communication skills. Scientists write reports, give public presentations, collaborate with other scientists, and work with community, state and federal agencies.

One thing that scientists do is to provide technical information to local governments on wildlife management issues or when there are conflicts between development or human activities and wildlife. Scientists often assist communities as they consider issues of stewardship and management of estuaries and protection of natural resources.

Scientists may provide research information to local governments, may participate in community forums, or may help a town to come up with an **ordinance** to address some wildlife conflict or concern. In addition to local ordinances, there are state and federal laws, such as the U.S. **Endangered Species Act of 1973**, which apply in the management and protection of habitat areas for endangered species.





## ACTIVITY SCENARIO FOR TURTLE TROUBLE:

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## VOCABULARY

**Aquatic Biologist:** Aquatic biologists study microorganisms, plants, and animals that live in the water. There are several types of aquatic biologists. The **Marine Biologist** studies plants and animals that live in salt water. The **Limnologist** studies fresh water organisms and systems. **Fisheries Biologists** usually study fish and other creatures that live in freshwater and marine environments. They often work to maintain animal population sustainability and growth and the preservation of habitats. All of these people are considered to be biological scientists.

**Endangered Species Act of 1973:** This law gives the federal government jurisdiction over the management of any plant or animal listed on the Endangered Species list. The original intent of the law stated that no government agency could perform any activity that would lead to extinction of any organism on the list and that all government agencies must work together to prevent extinction.

**Environmental Scientist:** Environmental scientists conduct research to identify pollutants that affect our natural resources and make recommendation to eliminate these hazards. Environmental scientists have training that is similar to biologists, but their research focuses on environmental issues.

**Ordinance:** A statute or regulation, especially one enacted by a city or local government.



## SUNSHINE STATE STANDARDS

### ACTIVITY CORRELATIONS

#### Science

##### The Nature of Science

Standard 1: The student uses the scientific processes and habits of mind to solve problems. (SC.H.1.3)

SC.H.1.3.4: knows that accurate record keeping, openness and replication are essential to maintaining an investigator's credibility with other scientists and society.

SC.H.1.3.5: knows that a change in one or more variables may alter the outcome of an investigation.

SC.H.1.3.6: recognizes the scientific contributions that are made by individuals of diverse backgrounds, interests, talents, and motivations.

#### Social Studies

##### Government and the Citizen [Civics and Government]

Standard 1: The student understands the structure, functions, and purposes of government and how the principles and values of American democracy are reflected in American constitutional government.

SS.C.1.3.1 : knows the essential ideas of American constitutional government that are expressed in the Declaration of Independence, the Constitution, the Federalist Papers, and other writings.

SS.C.1.3.2: understands major ideas about why government is necessary and the purposes government should serve.

SS.C.1.3.3: understands how the legislative, executive, and judicial branches share power and responsibilities (e.g., each branch has varying degrees of legislative, executive, and judicial powers and responsibilities).

SS.C.1.3.4: knows the major parts of the federal system including the national government, state government, and other governmental units (e.g., District of Columbia, American tribal governments, and the Virgin Islands).

SS.C.1.3.5: knows the major responsibilities of his or her state and local governments and understands the organization of his or her state and local governments.

SS.C.1.3.6: understands the importance of the rule of law in establishing limits on both those who govern and the governed, protecting individual rights, and promoting the common good.

Standard 2: The student understands the role of the citizen in American democracy. (SS.C.2.3)



- SS.C.2.3.1: understands the history of the rights, liberties, and obligations of citizenship in the United States
- SS.C.2.3.2: understands that citizenship is legally recognized full membership in a self-governing community that confers equal rights under the law; is not dependent on inherited, involuntary groupings; and confers certain rights and privileges (e.g., the right to vote, to hold public office, and to serve on juries)
- SS.C.2.3.3: understands the argument that all rights have limits and knows the criteria commonly used in determining when and why limits should be placed on rights (e.g., whether national security is at risk.)
- SS.C.2.3.4: understands what constitutes personal, political, and economic rights and the major documentary sources of these rights.
- SS.C.2.3.5: understands how he or she can contact his or her representatives and why it is important to do so and knows which level of government he or she should contact to express his or her opinions or to get help on a specific problem.
- SS.C.2.3.6: understands the importance of participation in community service, civic improvement, and political activities.
- SS.C.2.3.7: understands that current issues involving rights that affect local, national, or international political, social, and economic systems.

## Language Arts

### Writing

Standard 2: The student writes to communicate ideas and information effectively. (LA.B.2.3)

- LA.B.2.3.1: Writes text, notes, outlines, comments, and observations that demonstrate comprehension of content and experiences from a variety of media.
- LA.2.3.2: organizes information using alphabetical, chronological, and numerical systems.
- LA.B.2.3.3: selects and uses appropriate formats for writing, including narrative, persuasive, and expository formats, according to the intended audience, purpose, and occasion.
- LA.B.2.3.4: uses electronic technology including databases and software to gather information and communicate new knowledge.

### Listening, Viewing, Speaking

Standard 1: The student uses listening strategies effectively. (LA.C.1.3)

- LA.C.1.3.1: listens and uses information gained for a variety of purposes, such as gaining information from interviews, following directions, and pursuing a personal interest.
- LA.C.1.3.2: selects and listens to readings of fiction, drama, nonfiction, and informational presentations according to personal preferences.
- LA.C.1.3.3: acknowledges the feelings and messages sent in a conversation.
- LA.C.1.3.4: uses responsive listening skills, including paraphrasing, summarizing, and asking questions for elaboration and clarification.

Standard 2: The student uses viewing strategies effectively. (LA.C.2.3)

LA.C.2.3.1: determines main concept, supporting details, stereotypes, bias, and persuasion techniques in a nonprint message.

LA.C.2.3.2: uses movement, placement, juxtaposition, gestures silent periods, facial expressions, and other nonverbal cues to convey meaning to an audience.

Standard 3: The student uses speaking strategies effectively. (LA.C.3.3)

LA.C.3.3.1: understands how volume, stress, pacing, and pronunciation can positively or negatively affect an oral presentation.

LA.C.3.3.2: asks questions and makes comments and observations that reflect understanding and application of content, processes, and experiences.

LA.C.3.3.3: speaks for various occasions, audiences, and purposes, including conversations, discussions, projects and informational, persuasive, or technical presentations.

